

YEONSU PARK

☎ +82-33-250-8446 📍 Chuncheon, Republic of Korea

✉ yeonsu.park@kangwon.ac.kr **in** [linkedin.com/in/yeonsu-park](https://www.linkedin.com/in/yeonsu-park) 🏠 [park-yeonsu.github.io](https://github.com/park-yeonsu)

SUMMARY

I am an assistant professor in the Department of Computer Science and Engineering at Kangwon National University. Previously, I was a postdoctoral research scientist at POSTECH. I received my Ph.D. in Computer Science and Engineering from POSTECH, where I was fortunate to be advised by Professor Wook-Shin Han. Before that, I obtained my B.S. degree in Software Engineering from Sungkyunkwan University. My research interests include big data processing, query processing, and query optimization.

EDUCATION

Ph.D. in Computer Science and Engineering, POSTECH Feb. 2018 - Feb. 2024
Advisor: Prof. Wook-Shin Han

B.S. in Software Engineering, Sungkyunkwan University Mar. 2011 - Feb. 2017
Graduated with 1st rank in Dept. of Software
GPA: 4.35/4.5 (Major-only GPA: 4.43/4.5)
Took leave of absence for two years (for mandatory military service)

EMPLOYMENT

Assistant Professor, Kangwon National University, Republic of Korea Sep. 2024 - Present
Postdoctoral Research Scientist, POSTECH, Republic of Korea Feb. 2024 - Aug. 2024
Researcher, POSTECH, Republic of Korea Oct. 2017 - Feb. 2018
Software Engineer Intern, NCSOFT, Republic of Korea Jan. 2012 - Feb. 2012

RESEARCH INTERESTS

Big Data Processing, Database Query Processing and Optimization, Algorithms

PUBLICATIONS

Peer-reviewed Conference Papers

- [1] QaaD (Query-as-a-Data): Scalable Execution of Massive Number of Small Queries in Spark
Yeonsu Park, Byungchul Tak, and Wook-Shin Han
ACM SIGMOD 2023 (Top Database Conference)
- [2] A Study on the Construction of a Database for On-site Safety Accidents in Hazardous Chemical Workplaces
Jaehyun Ha, Sangoh Lee, Taesung Lee, Yeonsu Park, and Wook-Shin Han
KDBC 2023
- [3] G-CARE: A Framework for Performance Benchmarking of Cardinality Estimation Techniques for Subgraph Matching
Yeonsu Park, Seongyun Ko, Sourav S. Bhowmick, Kyoungmin Kim, Kijae Hong, and Wook-Shin Han
ACM SIGMOD 2020 (Top Database Conference)
- [4] A Survey on Worst-case Optimal Join Algorithms
Yeonsu Park, Taesung Lee, Seung-Min Lee, Junseung Hwang, and Wook-Shin Han
Korean Information Science Society Conference, 2018
- [5] A Survey of Methods for Dynamic Graph Updates on the State-of-the-art Graph Processing Systems
Seung-Min Lee, Jeong-Hwan Kim, Byeonghoon So, Yeonsu Park, and Wook-Shin Han
Korean Information Science Society Conference, 2018

- [6] Performance Evaluation of RocksDB Depending on Sync Option
Yeonsu Park, Gihwan Oh, Jong-baek Lee, Woon-Hak Kang, and Sang-Won Lee
Korean Information Science Society Conference, 2014

Dissertation

- [7] Scalable Execution of Massive Number of Small Queries in Spark
Yeonsu Park
Ph.D. Dissertation, 2024

Patents

- [8] DISTRIBUTED PROCESSING SYSTEM AND METHOD FOR PROCESSING DATA
Wook-Shin Han, Yeonsu Park, and Kijae Hong
KR Patent No. 10-2022-0110236, 2022
- [9] ELECTRONIC APPARATUS AND DATA PROCESSING METHOD THEREOF, AND SYSTEM FOR DISTRIBUTED PROCESSING
Young Hwa Lee, Wook-Shin Han, Hyeonji Kim, and Yeonsu Park
KR Patent No. 10-2021-0172678, 2021

AWARDS AND HONORS

Google Conference Scholarship	2023
Samsung Humantech Paper Award (Computer Science & Engineering)	2020
- <i>Silver Prize</i>	
Graduation with 1st rank in Dept. of Software, Sungkyunkwan University	2017
ACM International Collegiate Programming Contest (ACM-ICPC) World Finals	2014
- <i>Special Award</i>	
- <i>45th Place</i>	
ACM International Collegiate Programming Contest (ACM-ICPC) Asia Regional (Korea Site)	2013
- <i>4th Place</i>	
ACM International Collegiate Programming Contest (ACM-ICPC) World Finals	2013
- <i>48th Place</i>	
ACM International Collegiate Programming Contest (ACM-ICPC) Asia Regional (Korea Site)	2012
- <i>2nd Place</i>	
Sungkyun Software Scholarship	2011 - 2016
Dean's List, College of Computing, Sungkyunkwan University	2011 - 2016
- <i>Recognized on the Dean's List for seven semesters</i>	
Korea Olympiad in Informatics (KOI)	2009
- <i>Silver Medal</i>	

PROJECTS

Scalable Execution of Massive Number of Small Queries in Spark	2022 - 2023
Ph.D. Student, POSTECH	Pohang, Republic of Korea
<ul style="list-style-type: none">Achieved substantial performance improvement in Spark for small query workloads by proposing and implementing a query merge-based technique, resulting in $10.6\times$ to $36.6\times$ faster processing compared to standard Spark executions.Published at SIGMOD 2023.	
Scalable Sequential Pattern Mining in Spark	2020 - 2022
Ph.D. Student, POSTECH (collaborated with Samsung Electronics)	Pohang, Republic of Korea
<ul style="list-style-type: none">Parallelized the cSPADE algorithm in Spark, achieving a $100\times$ improvement in scalability compared to the sequential pattern mining algorithm of Spark MLlib.	

- Proposed and developed a comprehensive framework for cardinality estimation techniques, enabling the realization of existing methods and providing insights on their performance, by identifying serious accuracy issues in various scenarios and datasets.
- Discovered that a simple method designed for relational data consistently outperforms all others on graph data.
- Published at SIGMOD 2020.

ACADEMIC TALKS

QaaD (Query-as-a-Data): Scalable Execution of Massive Number of Small Queries in Spark

- ACM SIGMOD 2023, Seattle, WA, USA Jun. 2023

G-CARE: A Framework for Performance Benchmarking of Cardinality Estimation Techniques for Subgraph Matching

- Top Conference Session, Korea Computer Congress 2020 (Virtual) Jul. 2020
- ACM SIGMOD 2020, Portland, OR, USA (Virtual) Jun. 2020
- SAP Labs Korea, Seoul, Republic of Korea Nov. 2019

ACADEMIC SERVICES

Reviewer SIGMOD Record (2024)

TEACHING EXPERIENCE

Instructor	Kangwon National University – 4471030 Database	Fall 2024
	Kangwon National University – 4471016 Algorithms	Fall 2024
	Kangwon National University – 1410033 C Programming	Fall 2024
Teaching Assistant	POSTECH – CSED421 Database System	Spring 2021
	Samsung – Advanced Data Programming	2020
	POSTECH – CSED421 Database System	Fall 2020
	POSTECH – CSED421 Database System	Fall 2019

SKILLS

Programming Languages C/C++, Python, Scala, Bash
Software & Technologies Big Data Framework (Apache Spark), Databases

REFERENCES

Wook-Shin Han, Professor, POSTECH
Byungchul Tak, Associate Professor, Kyungpook National University

✉ wshan@dblab.postech.ac.kr
✉ bctak@knu.ac.kr